



## Colorado Science and Engineering Fair

## 2024 Individual Project Abstract Form

**Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.**

Title of Project: Want a Clean House? Household Environments and Disinfectant Types

Finalist's Name: Miles Montgomery

School and City: Flagstaff Academy, Longmont

Sponsor's Name: Lauren Liedtke

Category: Micro & Molecular Biology (MCRO)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

This project aims to answer these questions: If there are different conditions in each room of the house, then do disinfectants affect the bacteria from each room differently? Which disinfectants are best at killing bacteria from different household environments. These questions were answered by testing ammonia, bleach, and isopropyl alcohol on bacteria from the bathroom, kitchen, and living room. Data was measured using the colony count of the bacterial samples. Three important concepts for this project were bacterial growth, species differentiation, and disinfectants. The hypothesis for the experiment was that the best disinfectant would be the one able to kill the most bacteria per ml. After taking two control samples and three samples for each disinfectant per room, the samples were brought to school and incubated for three days. After this, a ml of disinfectant was tested on each appropriate sample, after which the number of living colonies were counted. The results showed that the kitchen had the most bacteria overall. Each disinfectant had an equal effect on the bacteria, making isopropyl alcohol the best to use as it is the cheapest and safest of the disinfectants. Some things to improve if the experiment were to be repeated would be a better time-management plan and a greater sample size. This would create more consistency and better results from the experiment.

*I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.*

Finalist's Signature:

*Miles Montgomery*

Date:

*2/27/24*

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.